

# Quad Serial I/O Card™

*PC Card with four serial communications ports  
for connecting peripheral devices to:*

- *Windows Powered Pocket PCs*
- *Windows CE-based Handheld PC Pros and pen tablets*
- *Windows 95 (v95B or greater) notebooks*
- *Windows 98/Me/2000/XP and MS-DOS notebooks*

## User's Guide



**socket™**

## **How This Manual Is Organized**

This manual is designed to help you install and operate the Socket Quad Serial I/O Card.

Chapter 1, “Introduction,” describes the key features of the Quad Serial I/O Card and identifies the package contents.

Chapter 2, “Windows CE Setup,” explains how to install the hardware and software for the Q-I/O on a Windows Powered Pocket PC or Windows CE-based Handheld PC Pro or pen tablet. It also explains how to use the Quad I/O applet to identify which COM ports Windows assigned to the Q-I/O.

Chapter 3, “Windows 9x/Me/2000/XP Setup,” shows how to install the hardware and software for the Q-I/O on a Windows 9x/Me/2000 notebook computer. It also shows how to identify COM ports and discusses hot-swapping for these Windows versions.

Appendix A, “Specifications,” lists technical specifications for the Quad Serial I/O Card.

Appendix B, “Troubleshooting,” gives advice for correcting the most common problems you may encounter while installing or using the Quad Serial I/O Card.

Appendix C, “Technical Support,” gives contact information for Socket technical support.

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# Chapter 1 Introduction

## Overview

The Quad Serial I/O Card (Q-I/O) makes it easy to add four serial communications ports to your Windows or DOS-based mobile computer. Each port operates independently and can link to an external modem, label printer, bar code scanner, digital camera or other serial device. It's ideal for applications that need mobile data collection from multiple sources.



Ruggedized with non-removable serial cables, the Q-I/O is designed to withstand stress from industrial or field applications. It works in the PC Card (PCMCIA) slot of these mobile computers:

- Mobile computers based on Windows CE (v2.11 or 3.0), including Pocket PCs, Handheld PC Pros and pen tablets
- Windows 95 (v95B or greater) notebooks
- Windows 98/Me/2000/XP or MS-DOS notebooks

For software updates, visit: [www.socketcom.com/support/support\\_serial.htm](http://www.socketcom.com/support/support_serial.htm)  
Windows CE and Windows 9x/Me/2000 support hot swapping, which lets you remove a PC Card and re-insert it without rebooting.

For DOS, please refer to the ENABLER.TXT file on the installation CD. This DOS enabler is intended for advanced users and is not supported by Socket technical support.

The Q-I/O might not work with some third party Card Services software.

**Note:** Socket does not recommend using the Quad Serial I/O Card with a mouse. If you have a mouse with a DB-9 connector, plug your mouse into your notebook's built-in serial port. If your mouse has a PS/2 connector, it can only be connected to your notebook's PS/2 mouse connector.



## Contents of the Q-I/O Package

The Socket Quad Serial I/O Card package includes these items:

- A Socket Quad Socket Serial I/O Card, with four non-removable cables, each with a DB-9 connector at the end.
- The *Socket Quad Serial I/O Installation Disc*
- The *Quick Start Guide for Quad Serial I/O Card*
- A registration card



Register the product online at: [www.socketcom.com/product/prodreg.htm](http://www.socketcom.com/product/prodreg.htm)

## Chapter 2 Windows CE Setup

This chapter explains how to install the Quad Serial I/O Card for Windows CE-based mobile computers, including Pocket PCs, Handheld PC Pros, and pen tablets.

### Installation Steps Summary

STEP 1: Register your card.  
STEP 2: Install the software.  
STEP 3: Insert the card.  
OPTIONAL: Identify COM ports.



### STEP 1: Register the Card

Register your Q-I/O online at [www.socketcom.com/product/prodreg.htm](http://www.socketcom.com/product/prodreg.htm)

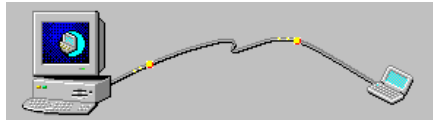
You can also use the product registration form included in your product package.

## STEP 2: Install the Software

### ***Important!***

***For Windows CE, install the software **BEFORE** inserting the card.***

1. Make an active partnership between the mobile computer and a host PC.



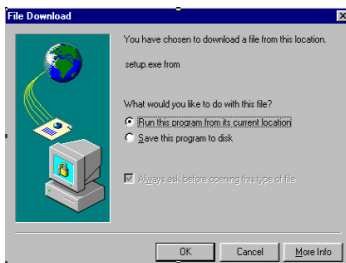
An active partnership exists if data can be transferred between the mobile computer and the host PC via the mobile computer's serial or USB connection cable or cradle.

2. Insert the *Quad Serial I/O Installation CD* into the host PC.



3. IF YOUR DEFAULT WEB BROWSER IS INTERNET EXPLORER, you can install either the SETUP.HTM or the SETUP.EXE:
  - (a) Click **Start** then **Run** on the host PC.
  - (b) Type **X:\SETUP.HTM** or **X:\SETUP.EXE**  
(Replace X with your CD drive letter.)
  - (c) In the **File Download** screen, select the option that lets you run  
(or open) the file from its current location.

***IMPORTANT! YOU MUST RUN THE FILE! DO NOT SAVE IT!***



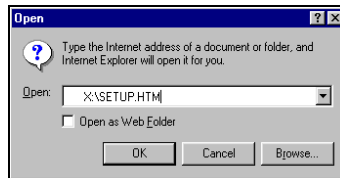
*File Download screen from Internet Explorer 5.5*

- (d) A **Security Warning** screen will appear. Click **Yes**.

IF YOUR DEFAULT WEB BROWSER IS [NETSCAPE](#), DO **NOT** run the [SETUP.HTM](#) file on Netscape, because it will not work properly. Instead, choose either of two options:

[OPTION ONE](#): Use Internet Explorer to run the [SETUP.HTM](#) file.

- (a) In the Internet Explorer screen, click **File | Open**.
- (b) In the **Open** screen, type **X : \SETUP . HTM**  
(Replace X with your CD drive letter.)



*Open screen from Internet Explorer 5.5*

- (c) Proceed with the instructions described on the previous page for Internet Explorer.

[OPTION TWO](#): Run the [SETUP.EXE](#) file.

Click on **My Computer** or use Windows Explorer to manually browse the CD to the WinCE (or other appropriate directory) and manually launch the **SETUP . EXE** file found there.

***Important! Be sure to choose the SETUP.EXE file, NOT the SETUP.HTM file. The two file types have different icons:***



*EXE icon*



*HTM icon for Netscape*

- 4. Follow the instructions on the host PC screen until setup is done.  
*Note: After completing setup, your host PC may display an **Application Downloading Complete** screen. Click **OK**.*
- 5. Disconnect the mobile computer from the host PC.
- 6. Soft reset the mobile computer. Push the reset button, often on the back of the mobile computer.



## STEP 3: Insert the Card into Your Computer

### ***Important!***

***For Windows CE, you must install the software before inserting the card!***

Plug the Q-I/O into the PC Card slot of your mobile computer, with the brown label facing up.



Some mobile computers signal good card insertion via a beep, message screen, and/or task tray icon.

Now you are ready to use the Quad Serial I/O Card with serial devices.

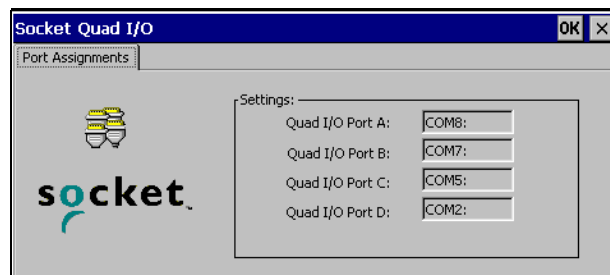
## OPTIONAL: Identify COM Ports

To identify what COM ports Windows has assigned, use the Q-I/O applet.

1. Pocket PCs — Go to **Start | Settings | System | Socket Quad I/O**  
H/PCs — Go to **Start | Settings | Control Panel | Socket Quad I/O**



2. The **Port Assignments** screen will display the COM ports.



*Port Assignments screen from a Handheld PC Pro*

## **Removing the Card from a Windows CE-based Mobile Computer**

Before removing the Q-I/O, close any applications using it. Then use your mobile computer's PC Card eject button to remove the card.

DO NOT remove the Q-I/O by pulling on the cables.

## Chapter 3 Windows 9x/Me/2000/XP Setup

This chapter explains how to install and use the Quad Serial I/O Card on Windows 9x/Me/2000/XP notebooks.

### Installation Steps Summary

STEP 1: Register your card.  
STEP 2: Insert the card.  
STEP 3: Install the software.  
OPTIONAL: Identify COM ports.



### STEP 1: Register the Card

Register your Q-I/O online at [www.socketcom.com/product/prodreg.htm](http://www.socketcom.com/product/prodreg.htm). You can also use the product registration form included in your product package.

### STEP 2: Insert the Card into Your Computer

#### ***Important!***

***For Windows 9x/Me/2000/XP, you must insert the card before installing the software!***

Plug the Q-I/O into the PC Card slot of your mobile computer, with the brown label facing up.



Some mobile computers signal good card insertion via a beep, message screen, and/or task tray icon.

## STEP 3: Install the Software

### ***Important!***

***Make sure you insert the card into your notebook computer before installing the software.***

For Windows 9x/Me/2000/XP, you must install the two drivers separately.

1. After inserting the Q-I/O into the PC Card slot of your Windows notebook, a new hardware or device driver wizard will appear.



*Add New Hardware Wizard from Windows 98*

2. Insert the *Quad Serial I/O Installation Disc*.



3. Follow the wizard to install the Q-I/O drivers, making the appropriate selection for your Windows version below as prompted:
  - a. Windows 95 — Select **Other locations** and specify your CD drive.
  - b. Windows 98 — Select **Search for the best driver for your device**. In the next screen, select **CD-ROM drive**.
  - c. Windows Me — Select **Automatic search for a better driver**.
  - d. Windows 2000 — Select **Search for a suitable driver for my device**. In the next screen, select **CD-ROM drive**.
  - e. Windows XP — Select **Install the software automatically**. Click **Next**. In the **Hardware Installation Warning** screen, select **Continue Anyway**.

When installation is done for the first driver, you must repeat the wizard to install the second driver. The wizard will restart automatically. Use the same selections for your Windows version listed above.

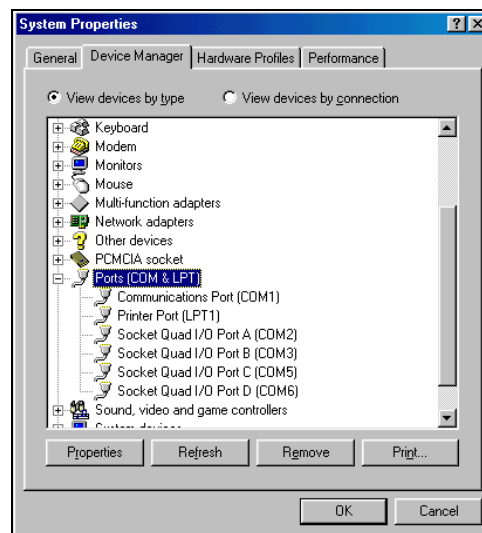
***Important! The wizard may report that it is installing an Unknown Device. Just proceed as usual.***

## OPTIONAL: Identify Windows COM Ports

### Windows 9x/Me

Follow these steps to identify which COM ports Windows has assigned to the Q-I/O:

1. Go to **Start | Settings | Control Panel | System**.
2. In the **System Properties** screen, click on the **Device Manager** tab.
3. Select **View devices by type**, and click on **Ports**.  
The **Socket Quad I/O Ports** will be listed with their COM port numbers.



*Device Manager screen from Windows 98*

### Windows 2000/XP

Besides following the directions for Windows 95/98/Me described above, you can also use the following shortcut:

1. Click on the **PC Card icon** on the task bar.



2. In the **Unplug or Eject Hardware** window, select **Display device components** to view the COM port assignments. **DO NOT** click **Stop**.

If Windows 2000 assigns a COM port number 10 or above, you must specify the path to access or open the COM port. For example, to access COM10, use the following syntax: `\\.\COM10`

## Hot Swapping

Windows 9x/Me/2000XP support hot swapping, which lets you remove a PC Card and re-insert it without rebooting.

With some Windows configurations, not all application programs will gracefully handle the sudden disappearance of a communications port. When removing and re-inserting the Q-I/O, your COM port assignments may change, so you may need to reconfigure your applications for the new COM ports. Remember to stop the card before removing it.

*Note: Socket does not recommend using the Q-I/O with a mouse.*

## Removing the Quad Serial I/O Card from a Windows 9x/Me/2000/XP Notebook

1. Close any applications using the Q-I/O.
2. Click on the **PC Card icon** on the task bar at the bottom of your screen.

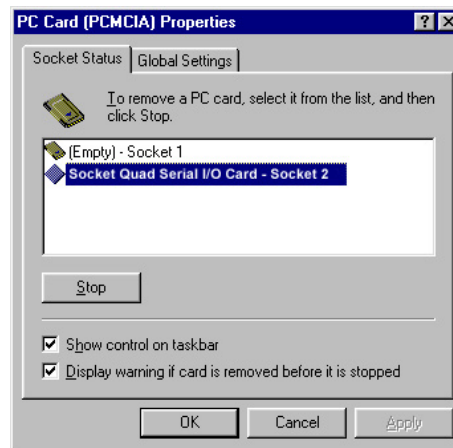


*Windows 95/98 icon*



*Windows Me/2000/XP icon*

3. In the screen that appears, select the Q-I/O and click **Stop**.



*PC Card Properties screen from Windows 98*

4. A screen will appear reporting that it is safe to remove the PC Card. Click **OK**.



*Safe device removal screen from Windows 98*

5. The previous PC Card properties screen will reappear, showing that the socket previously occupied by the Q-I/O is now empty. Click **OK**.
6. Push your notebook computer's PC Card eject button to remove the card. DO NOT remove the card by pulling on the cables.

# Appendix A Specifications

## *Physical Characteristics:*

### **I/O PC Card**

|                           |  |
|---------------------------|--|
| <b>Dimensions:</b>        | 3.37 x 2.13 x 0.197 in<br>(85.6 x 54.0 x 5.0 mm) |
| <b>Weight with cable:</b> | 6.4 oz (181.4 g)                                 |

### **Interconnect Cables**

|                          |                          |
|--------------------------|--------------------------|
| <b>Length:</b>           | 24 in long (610mm) fixed |
| <b>Serial Connector:</b> | Four 9-Pin D Shell Male  |

## *Environmental Conditions:*

|                               |                           |
|-------------------------------|---------------------------|
| <b>Operating Temperature:</b> | 0°C to +55°C              |
| <b>Storage Temperature:</b>   | -20°C to +65°C            |
| <b>Relative Humidity:</b>     | 10% to 90% non-condensing |

## *Power Consumption (supplied by host):*

|                     |                    |
|---------------------|--------------------|
| <b>Minimum:</b>     | 5.8 mA (29 mW)     |
| <b>Typical:</b>     |                    |
| <b>One port:</b>    | 19.2 mA (96 mW)    |
| <b>Two ports:</b>   | 32.1 mA (160.5 mW) |
| <b>Three ports:</b> | 44.3 mA (221.5 mW) |
| <b>Four ports:</b>  | 55.6 mA (278 mW)   |
| <b>Maximum:</b>     |                    |
| <b>One port:</b>    | 19.5 mA (97.5 mW)  |
| <b>Two ports:</b>   | 32.3 mA (161.5 mW) |
| <b>Three ports:</b> | 44.5 mA (222.5 mW) |
| <b>Four ports:</b>  | 55.8 mA (279 mW)   |

## *Interface Standards:*

|                               |   |
|-------------------------------|---|
| <b>I/O PC Card Interface:</b> | PCMCIA Release 2.0, Type II,<br>JEIDA 4.1 Compliant |
| <b>Serial Communications:</b> | Asynchronous RS-232                                 |

## *Software Included:*

|                                   |                                 |
|-----------------------------------|---------------------------------|
| <b>Windows 9x:</b>                | INF file and device driver      |
| <b>Windows Me:</b>                | INF file and device driver      |
| <b>Windows 2000:</b>              | INF file and device driver      |
| <b>Windows XP:</b>                | INF file and device driver      |
| <b>Windows CE (v2.11 or 3.0):</b> | Setup program and device driver |
| <b>MS-DOS:</b>                    | Direct enabler                  |
| <b>Media:</b>                     | CD-ROM                          |



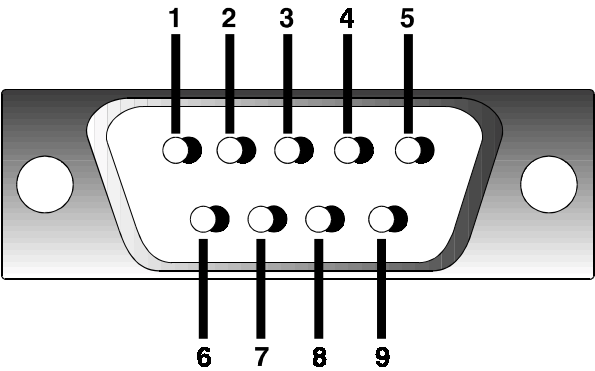
**OS Support:** Windows 95 (v95B or greater)  
Windows 98/Me/2000/XP  
Windows CE (v2.11 or 3.0)  
MS-DOS

**Compatibility:**  
**Port A:** COM 1, 2, 3, 4 or any I/O address  
**Port B:** COM 2 (2F8), COM 3 (3E8) or COM 4 (2E8)  
**Port C:** Memory mapped at offset 0x780  
**Port D:** Memory mapped at offset 0x790

**Programmable Characteristics:**  
**Character length:** 5-, 6-, 7- or 8-bit  
**Parity:** Even, odd or none  
**Baud rate generation:** Up to 115.2K baud  
**UART Type:** Oxford 16C950

**Pin Assignments for each DB-9 Connector:**

| Pin Number | Function            |
|------------|---------------------|
| 1          | Data Carrier Detect |
| 2          | Receive Data        |
| 3          | Transmit Data       |
| 4          | Data Transmit Ready |
| 5          | Ground              |
| 6          | Data Set Ready      |
| 7          | Request to Send     |
| 8          | Clear to Send       |
| 9          | Ring Indicator      |



## Appendix B Troubleshooting

### SYMPTOM:

- My notebook doesn't recognize the Q-I/O.

| POSSIBLE REASON   | SOLUTION  |
|---|---|
| The Q-I/O is improperly seated in your notebook's PC Card slot. | Remove the card from the PC Card slot and re-insert it. |

### SYMPTOM:

- I get *Unidentified PC Card Adapter* after inserting the Q-I/O into my Handheld PC Pro.

| POSSIBLE REASON   | SOLUTION  |
|---|---|
| The Q-I/O software drivers were improperly loaded or corrupted. | Run the SETUP program on the <i>Quad Serial I/O Installation Disc</i> , or load the latest drivers from: <a href="http://www.socketcom.com/support_serial.htm">www.socketcom.com/support_serial.htm</a> |

### SYMPTOM:

- My mouse works erratically with the Q-I/O.

| POSSIBLE REASONS   | SOLUTION  |
|--|---|
| Some mouse drivers behave erratically with PC Card serial ports. | Socket does not recommend attaching a mouse to the Q-I/O. For a serial mouse, use your computer's built-in RS-232 port. |

### SYMPTOM:

- I can't find a free interrupt on my notebook.

| POSSIBLE REASONS                                | SOLUTION  |
|---|---|
| Unused interrupts are scarce in most notebooks. | The Q-I/O needs one interrupt. Consult your notebook manufacturer for help in disabling an unused feature (e.g., IrDA). In extreme cases, you may need to remove a PC Card. |

### SYMPTOM:

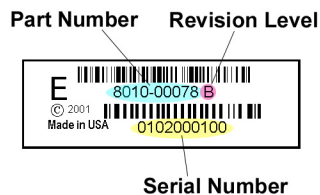
- My application doesn't recognize the Q-I/O.

| POSSIBLE REASONS  | SOLUTION  |
|---|---|
| Your application isn't configured for the Q-I/O's port assignments.   | Check the Q-I/O's COM port assignments. From the <b>Control Panel</b> , run the <b>Socket Quad I/O Card applet (QuadIO</b> for Windows CE). Then go to your application and configure for the right <b>Socket Quad I/O Port</b> , usually via a menu called "Configuration," "Options," "Communications," or "Setup." |
| You removed and re-inserted the Q-I/O, so new COM ports have been assigned.   | You need to reconfigure your application for the new COM port assignments. Please refer to the box above for instructions.  |
| You are using multiple serial PC Cards (e.g., serial I/O cards, modem cards, GPS cards, etc.) with Windows 9x/Me/2000 and inserted them in a different order than the last time you used the application. | COM port assignments can vary with the order in which you insert the PC Cards. Reconfigure the application, by following the steps described in the box above. In the future, insert your serial PC Cards in the same order every time.   |
| You are running a MS-DOS programs on Windows 9x/Me/2000.  | Some MS-DOS programs running on Windows 9x/Me/2000 don't work with the Q-I/O. Choose another application.   |

## Appendix C Technical Support

If you have problems installing or using the Quad Serial I/O Card, please refer to Appendix B, “Troubleshooting.” If problems persist, feel free to contact Socket’s technical support department, prepared with the following information:

- The part number (including revision level) and serial number of your Quad Serial I/O Card. Please see the diagram below.
- The manufacturer, model number, and operating system (e.g., Windows version) of your mobile computer
- What you did to try to correct the problem



To reach Socket’s technical support department:

- Visit [www.socketcom.com](http://www.socketcom.com)
- Email [techsupport@socketcom.com](mailto:techsupport@socketcom.com)
- Phone 510-744-2720
- Fax 510-744-2727

Please refrain from disassembling the Quad Serial I/O Card. Disassembly of this device will void the product warranty.

*Note: The DOS enabler is intended for advanced users only and is not covered by Socket technical support.*

## Limited Warranty

Socket Communications Incorporated (Socket) warrants this product against defects in material and workmanship, under normal use and service, for the following periods from the date of purchase:

Plug-in card: Lifetime (Three years if not registered)

Non-removable cable: Lifetime (Three years if not registered)

Incompatibility is not a defect covered by Socket's warranty. During the warranty period, Socket will, at its option, repair or replace the defective product at no charge when furnished with proof of retail purchase, provided that you deliver the product to Socket or to an authorized Socket Service Center.

The returned product must be accompanied by a return material authorization (RMA) number issued by Socket or by Socket's Authorized Service Center. If you ship the product, you must use the original container or equivalent and you must pay the shipping charges to Socket. Socket will pay shipping charges back to any location in the contiguous United States. This warranty applies only to the original retail purchaser and is not transferable.

Socket may, at its option, replace or repair the product with new or reconditioned parts and the returned product becomes Socket's property. Socket warrants the repaired or replaced products to be free from defects in material or workmanship for ninety (90) days after the return shipping date, or for the duration of the original warranty period, whichever is greater.

This warranty does not cover the replacement of products damaged by abuse, accident, misuse or misapplication, nor as a result of service or modification other than by Socket.

SOCKET IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM BREACH OF ANY EXPRESS OR IMPLIED WARRANTY, INCLUDING DAMAGE TO PROPERTY AND, TO THE EXTENT PERMITTED BY LAW, DAMAGES FOR PERSONAL INJURY. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Some states do not allow limitation of implied warranties, or the exclusion or limitation of incidental or consequential damages, so that the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

This product may contain fully tested, recycled parts, warranted as if new. For warranty information, phone (510) 744-2700.

## Limited Software Warranty

**LIMITED WARRANTY.** SOCKET warrants that the original disk or CD ROM is free from defects for 90 days from the date of delivery of the SOFTWARE.

**CUSTOMER REMEDIES.** SOCKET'S entire liability and your exclusive remedy shall be, at SOCKET'S option, either (a) return of the price paid or (b) replacement of the SOFTWARE which does not meet SOCKET'S Limited Warranty and which is returned to SOCKET with a copy of your receipt. Any replacement SOFTWARE will be warranted for the remainder of the original warranty period or 30 days, whichever is longer. THESE REMEDIES ARE NOT AVAILABLE OUTSIDE OF THE UNITED STATES OF AMERICA.

**NO OTHER WARRANTIES.** SOCKET disclaims all other warranties, either express or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with respect to the SOFTWARE and the accompanying written materials. This limited warranty gives you specific legal rights. You may have others which vary from state to state.

**NO LIABILITY FOR CONSEQUENTIAL DAMAGES.** In no event shall SOCKET or its suppliers be liable for any damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or other pecuniary loss) arising out of the use of or inability to use the SOFTWARE, even if SOCKET has been advised of the possibility of such damages. Because some states do not allow the exclusion or limitation of liability for consequential or incidental damages, the above limitation may not apply to you.

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October 2001

Document # 6410-00158 C

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Please be aware that the products described in this manual may change without notice.

This manual has been prepared with the greatest care regarding its contents. However, in the event that it contains omissions, errors or any other misinformation, please contact SOCKET COMMUNICATIONS at:

**Socket Communications, Inc.**  
37400 Central Court  
Newark, CA 94560

You are also welcome to call Socket Communications at (510) 744-2700, or you may FAX inquiries to (510) 744-2727.

For technical questions, call Socket's technical support at: 510-744-2720.

Other than the above, Socket Communications can assume no responsibility for anything resulting from the application of information contained in this manual.

Socket Communications requests that you refrain from any applications of the Socket Quad Serial I/O Card that are not described in this manual. Socket Communications also requests that you refrain from disassembling the PC Card. Disassembly of this device will void the product warranty.

You can track new product releases, software updates and technical bulletins by visiting Socket's web page at: <http://www.socketcom.com>

## Regulatory Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. This equipment is also CE EN55024:1998 and C-TICK compliant. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user may try to correct the interference by one or more of the following measures:

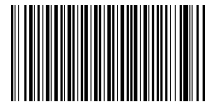
- Reorient or relocate the receiving antenna of the radio or television.
- Increase the distance separating the equipment and the receiver.
- Connect the equipment to an outlet on a different branch circuit than that of the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the following booklet helpful:

*How to Identify and Resolve Radio-TV Interference Problems*

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402.





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